ANALYSIS

Introduction

At this point in the investigation it was felt that these descriptive sorts could possibly aid in describing the disposition of artifacts in the areas of excavation; and consequently, elucidate and describe the entire disposition of the areas excavated. What follows and which was similarly employed for the description of debatage is an attempt at a refinement and explication of descriptive technique with respect to the archeological record. The operations to be performed could be seen as logically analogous to the steps preceding the formulation of types. (Note 2A--In the present case, the significant attributes are space and the descriptive sorts which are combined in different ways yielding all possible permutations. These would then be tested for their occurrence or non-occurrence in the site.)

The relations between sort of artifacts and their relations to cultural features will be discussed. No attempt is made to abstract social structure (Levi-Shauss 1963), although hypothesis may be offered. Certain assumptions are made as to why artifacts are where they are, because it is felt that this does relate to behavior (Binford 1964, Longace, 1970, Sheauver 1968). Archeological artifacts are seen as one element in the complex network of social relations (Levi-Strauss 1963). Human behavior is the primary component, but this element must always be inferred as there is no physical representation of human behavior in the archeological record. What is left is the behavior (Note 2B--The behavior of an artifacts can be defined as the relations between the attributes which define an artifact and the relations between artifacts) of artifacts, not living people. The recognition of this distinction is crucial if one is to make logically rigorous and explicit explanations in archeology. In his timely article, Schiffer (1972) discusses the formation process of the archeological record. He makes explicit various stages through which artifacts flow as they are acted upon. It is a model of the behavior of artifacts coached in tems of the social relations which are described by activities. With respect to the objects and related activities these stages assume a specific spatial and temporal context. These parameters of each stage may be coincidental with one another.

The logical import of this comdel is that it can be used either to describe the dispositions of artifacts or used to generate and test hypothesis in order to explain the archálogical record. (See Piaget 1970 and Whitehead and Russel 1923). Schiffers model is utilized here as a descriptive tool. ________________ for manipulating data and it defines the rules for manipulation: space, time and number. As the site essentially exists spatially on 2-dimensional plane as a result of historic activites (stratigraphy has been destroyed) and the absence of C14 dates, the time parameter will not be considered. No identity is claimed between the result of spatial and numerical operations performed by us, and the Indians operations which formulated the archeological record. What follows in intended only to be an analysis and description of form, not content. As a preliminary, the overall destribution of the artifacts was looked at. A X^2 test was performed on 2 major types of archeological artifacts: pottery and lithic materials. (see section on chipped stone artifacts)

For pottery the site was divided into 6 rough areas with respect to the assumed position of the ceramic producing village: the far north,(1) the far south,(2) the south fringe of the village (3), the north fringe (4), and two areas in the central portion of the village (5 & 6). These corresponding to the 6 major areas of excavation. The null hypothesis was tested: the sherd sorts occurred randomly over the site. Each sort was treated an independent at the levels of temper, design, and the final sort of temper, design and surface finish. The results are on table A', B', and C'. X^2 values in each cell is the value of each cell versus all others. It can be seen that the hematite, limestone, and shell tempered ware have a significant distribution (the null hypothesis is disproven). The hematite ware is significantly more frequent on the southern and northern ends of the village than it is in the central area of the village. The distribution of the limestone ware is reversed, occurring most frequently in the central area and less frequently on either side. The shell tempered ware has a relatively higher occurrence in the orchard and is depressed in the southern extremities and central areas. The distribution of the small sample of grit tempered ware appears to be random.

The distribution of the design element is only significant within the central region (the utility trench). Cord wrap design has a significantly higher occurrence than plain design which had a significantly lower occurrence. In the other areas the distribution appears to be random. This may be dus to difference in the numbers of vessels of one design and/or to differences in proportions of both designs on single vessels. Table C' shows the relative probabilities of the final sorts. In general, the distribution for the final sorts which are sub groups of different tempers is same as that at the level of temper, eg., both hematite cord and hematite plain display the same distributions as the group to which it is a member; all hematite temper ware. It is on the basis of such information that it was decided to utilize only groups of sherds at the level of temper. The distribution of sherds at the level of temper differences was then investigated further, employing the distinctions formulated by Schiffer, 2° refuse and non-2° refuse. (Note3--2° refuse is defined as an artifact whose "location of final discard is not the same as the location of use."[a] Non-2° refuse here includes 1° refuse and defacto refuse. "1° refuse is material discarded at its location of use."[b] Defacto refuse refers to materials "which reach the archeological context without the performance of discard activities."[c] 1° and defacto refuse are not distinguishable in the site dus to the mixing of artifacts by historic activities--plowing)(a & b Schiffer p. 161; c, p. 160) Materials found in features were relegated to the position of 2° refuse. All else is put in the category of non-2° refuse. On the basis of the previouse results on the overall distribution and the necessity for enlarging the cell size, the site was divided into three major areas: north (1), south (2), and central (3). Only the significante for non-random distribution was tested for hematite, limestone and shell tempered in the features and in non-2° refuse area. X^2 values are of each cell versus all. The results are shown in tables D' and E'. The same distributions (cord versus plain) shows up for the hematite tempered ware and limestone tempered ware in the two different types of refuse areas. A significant distribution of the shell tempered ware only occurrs in the non-2° refuse areas. No explanation is offered here.

For a further comparison between the two types of refuse areas the counts were combined in one table and the relative probabilities found. The results are in table F'.

No statistically test were applied to the bone. A few general observations can be made. It is only in those features (2° refuse areas) which have an association with the Late Prehistoric component in which bones of non-domesticated bones were found. (This does not necessarily say that there was never bone in the earlier component but only that if it was present, it was not preserved.) The absence or presence of bone appears to be one test for differentiating between the Late Prehistoric component and the earlier component. Furthermore, the samples of same specimens with the addition of rabbit and turtle, were found in non-2° refuse areas.

Conclusions

The results of the chipped flint, ceramics and bone must be viewed with their associated biases. These distributions are only for the excavated areas. They must not be considered representative of the entire site as the entire site was not properly, statistically speaking, sampled. As mentioned many times before there is also the problem of the absence of stratigraphy due to plowing. The artifacts alloted to 2° refuse and those alloted to non-2° refuse are not completely accurate assumming features of 2° refuse pits were partially destroyed, thus allotting their contents to non-2° refuse. These are the primary reasons for the use of statistical technique as a descriptive tool and not for testing behaviorally oriented hypothesis.

In terms of intra-site comparisons the results are only general as no mention has been made of differences between specific 2° refuse area or non-2° refuse areas of rich component, but only between general areas of refuse within each cultural component. In this sense, the description is incomplete. As the stratigraphy is lacking the 2° refuse area do essentially exist in 2-D space. This deters one from making descriptive statements about comparisons between specific 2° refuse areas and comparison between specifoc non-2° refuse areas which dould then be used at a later stage for formulating explanations. Certain cultrually related questions can only be answered tentatively as it takes more than a few formal characteristics which would include pottery types, tool types, feature types, etc. When trying to put them into a cultural context. Types are types, but this is only a very linited answer when considering the behavioral (human and material) possibilities that could be abstracted from spatial and temporal properties of the constituent elements of a site.

After the initial sorting by color, the flint was broken down into two subgroups: worked flint and debutage. The two subgroups were then broken down spatially according to stratigraphic units: plow zone, subsoil, and features (the features are only those with a possible or probable cultural affiliation), and then horizontally for each stratigraphic zone. (The horizontal distribution was divided into 8 different areas which roughly corresponded with the different areas of excavation) This breakdown was done to allow for different horizontal and stratagraphic comparisons. The results are in table A through F.

For descriptive purposes, the distribution of the debutage was tested for significance using the X^2 test (see discussion on pottery distributions for an explicit formulation of this procedure). This could not be done for the worked flint as the cell sizes were too small.

Only six of the color categories were used (dark grey and black, grey, white-blue grey, red grey/red brown, brown mix with dark grey and black, and brown), because the cell size for the other two categories were usually less than 5. Each stratigraphic zone was divided into 3 major areas: north, central, and south. The X^2 values are for each cell versus all others. The results are shown in tables G, H, and I.

The number of cells which have a significant occurrence is relatively low when compared with the total number of cells. The distribution of significant cells in each of the three tables correlate with one another in a few places.

Looking at how the actual values (+ indicates the actual value is above the expected, and a - indicates the actual value is below the expected value) are related to the expected, a few general statements can be abstracted. There appears to be a fairly good correspondence of the stratigraphic distibution of the debutage between the subsoil and features. The correspondence between the plow zone and the other two zones is not quite so close, tending to reverse itself in some cells. A possible explanation for this disposition is a later deposition in the plow zone of debutage with a different color frequency than in the subsoil and features. This cannot be tested positively as, not only has the plow zone been disturbed, but it also would contain debutage that was deposited in the features destroyed by historical activity.

There appear to be certain tendencies occurring in the horizontal distribution, although they are not statistically significant. Comparisons were made between the north and south areas, and between the two areas within the central area. The red/grey/red brown category had to be eliminated due to the small expected frequency. The results are shown on tables J through O.

As a side note, again the correspondence between the features and subsoil shows up. In general the brown and brown mix categories are most frequent in the south while the grey and black appear to occur most frequently in the north.

Within the central area the brown flint has a greater occurrence in the northern area (Rush's garden) and grey flint occurs more in the center of the central area (the south fringe of the control area had to be eliminated due to the small cell size).

While in many cases these characteristics are only tendencies and not statistically significant, they do draw one more distinction between the different areas of the site which will lend themselves to explanations should more work be done on the site, especially that between 2° refuse and non-2° refuse.

The small sample of worked flint does not make it appropriate for statistical manipulation, but there is very little, if any, correlation between the distribution of the debutage and worked flint accoding to color. This may be due to the small sample, but an altermative hypothesis is offered here. On a gross level, the location of waste flakes (debutage) does not correspond to the location of worked flint when compared by color because the areas of lithic manufacture correspond to areas of lithic use and disuse. (which would indlude storage and trash areas) This would be a major difference between 2° and non-2° refuse. This could not be tested with the available data but is offered as a line of inquiry for further research at Friendsville.

A'

		I	"	"	IV	V	VI	VII
		N.T.	G/I & III	G/II	Shell	Limest.	Hem.	Hem-thi.
N	1	0 *	0 *	0 *	0 *	6 − .15	7 + 8.29	0 *
S	2	0 *	0 *	0 *	1 *	0 *	7 + 21.04	0 *
Pritmao B.G.	3	2 *	2 *	0 *	5 − 5.84	12 − 17.94	27 + 30.8	4 *
Rush yard H.T.	4	0 *	8 + 5.01	4 *	92 + 32.78	48 − 158.48	100 + 6.71	3 *
Rushing Garden 4m²	5	0 *	2 *	0 *	64 − 8.51	261 + 126.32	19 − 89.76	4 *
V.T.	6	0 *	2 *	0 *	37 − .51	112 + 14.41	22 − 9.48	13 *

* = cell sig < 5
degress of freedom = 1

12	48
6	375

Table I : χ^2 values of each temper / each area (= 1 cell) vs. all others

includes all body sherds

B'

		I	"	"	IV
		PL	CORD	PUNC	INC.
N	1	5 − 1.19	8 + 1.34	0 *	0 *
S	2	5 + .90	2 *	0 *	0 *
B.G.	3	24 − .02	22 + .09	0 *	0 *
H.T.	4	103 + 3.15	70 − 2.74	1 *	0 *
4m²	5	134 + .14	109 − .23	0 *	3 *
U.T.	6	59 − 4.75	70 + 4.16	1 *	1 *

Table II : χ^2 values of each design / each area (= 1 cell) vs. all others

includes all body sherds

the code for these is in with the grand master chart/fact listing

		N.T	G_1/P	G_1/C	G_3	G_2/C	G_2/PU	S/P	S/C	S/I	L/P	L/C	L/I	H/P	H/C	B/P	B/C	B/I
North	1	0 *	0 *	0 *	0 *	0 *	0 *	0 *	0 *	0 *	2 *	4 *	0 *	3 *	4 *	0 *	0 *	0 *
South	2	0 *	0 *	0 *	0 *	0 *	0 *	1 *	0 *	0 *	0 *	0 *	0 *	4 *	2 *	0 *	0 *	0 *
~~Garden~~ flowerbed	3	2 *	0 *	1 *	0 *	0 *	0 *	3 *	2 *	0 *	6 − 3.48	5 − 6.69	0 *	12 + 14.68	11 + 9.06	1 *	3 *	0 *
Orchard	4	0 *	5 + 12.80	0 *	0 *	3 *	1 *	45 + 10.13	13 + 2.55	0 *	22 − 18.33	13 − 47.73	0 *	31 + 17.09	38 + 31.48	0 *	3 *	0 *
flowerbed ~~garden~~	5	0 *	0 *	2 *	0 *	0 *	0 *	40 − .66	10 − 1.03	1 *	86 + 24.31	89 + 12.87	2 *	8 − 20.21	6 − 29.17	0 *	2 *	0 *
C' utility bench	6	0 *	0 *	0 *	2 *	0 *	0 *	21 − .35	7 0.0	6 *	35 + .44	57 + 22.25	0 *	3 *	5 − 8.22	0 *	0 *	1 *

Table III

#10

E'

D'

Temper / Provenience		Limest.	Hemat.	Shell
N+H.T.	1	13 − −53.35	41 + 66.81	20 + .57
S.+B.G.	2	10 − −3.07	13 + 13.75	3 *
4m²	3	111 + 32.39	7 − 75.43	39 + .2
U.T.	4	35 + 4.66	5 − 4.87	11 − .13

Features

Table IV: χ^2 values of each cell vs all others for features (2° refuse)

Temper / provenience	Limest.	Hemat.	Shell
1	41 − 98.23	66 + 31.72	72 + 35.45
2	2 *	21 + 52.77	3 *
3	150 + 89.72	12 − 44.3	25 − 19.64
4	77 + 8.19	17 − 6.42	26 − .71

Non-features

Table V χ^2 values of each cell vs. all other of non feature (SS & PZ) (1° & de facto refuse)

F'

temper/specific location / proven.		LF (limestone/feature)	LN (limestone/non-feature)	H/F	H/N	S/F	S/N
north	1	13 − 53.34	41 − 46.3	41 + 32.87	66 + 42.67	20 − .43	72 + 48.72
south	2	10 − .05	2 *	13 + 21.95	21 + 31.49	3 − *	3 − *
central	3	111 + 49.21	150 + 30.57	7 − 28.94	12 − 55.41	39 + 4.32	25 − 29.86
central	4	35 .00	77 + 14.32	5 − 7.64	17 − 3.13	11 − 1.60	26 0.0

Table VI χ^2 values measuring relative significance of each cell for the entire site worked & utilized ~~flint/lithic~~ stone

(3) 13

159

A

Provenience \ Material		I Dark grey & Black	II Mottled	III Green grey	IV Grey	V White-Blue Grey	VI Red grey / Red Brown	VII Brown Mix with Dark Grey to Black	VIII Brown	IX Quartz	X Quartzite	XI Other	Total
south area	1	2	0	0	4	7	2	4	2	0	0	0	21
	2	0	1	0	1	2	0	4	0	0	0	0	8
	2A	0	1	0	3	3	1	2	0	0	0	0	10
Bittners Garden	3	2	0	0	4	2	0	0	0	0	0	0	8
Rush's Flow. Bed	4	0	0	0	2	0	0	0	0	0	0	0	2
Utility Trench	5	4	0	0	0	1	0	2	1	0	0	0	8
Rush's Yard	6	2	1	0	2	5	1	8	0	0	0	0	19
I North	7	2	2	0	1	7	0	6	4	0	0	3	25
Total		12	5	0	17	27	4	26	7	0	0	3	101

stratigraphic position: plowzone (Ap)

worked lithics

B

		Flint: Dark grey & Black	Mottled	Green Grey	Grey	White-Blue Grey	Red Grey / Red Brown	Brown Mix with Dark Grey to Black	Brown	Quartz	Quartzite	Other	Total
south area	1	1	0	0	0	1	1	0	0	0	0	0	3
	2A	1	0	0	0	0	0	3	1	0	0	0	5
	2A	2	0	1	0	2	1	1	2	0	0	0	9
Bittners Garden	3	0	0	0	0	0	0	1	0	0	0	0	1
Rush's Flower	4	2	0	0	1	0	0	0	0	0	0	0	3
Utility Trench	5	0	0	0	0	0	0	0	0	0	0	0	0
Rush's Yard	6	0	1	1	1	2	0	3	1	0	0	0	9
II North	7	2	2	0	0	1	0	2	2	0	0	0	9
Total		8	3	2	2	6	2	10	6	0	0	0	39

stratigraphic position: subsoil (B_{21}, B_{22}), excluding features

non-zone; worked lithics & flakes suggest that this is a transit & manu. area not ...

worked lithics counts / each area

Material / Provenience	Flint: Dark Grey & Black	Flint: Mottled	Flint: Green Grey	Flint: Grey	Flint: White-Blue Grey	Flint: Red Grey/Red Brown	Flint: Brown Mix with Dark Grey to Black	Flint: Brown	Quartz	Quartzite	Other	Total
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	1	2	6	0	0	0	0	0	9
2A	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	1	0	0	0	0	1
4	0	0	0	0	0	0	0	1	0	0	0	1
5	1	0	0	0	1	0	1	0	0	0	0	3
6	1	2	0	0	0	0	0	0	0	0	0	3
III 7	1	0	0	0	0	0	0	0	0	0	1	2
Total	3	2	0	1	3	6	2	1	0	0	1	19

Stratigraphic position: features (subsoil) debitage

2251

II

Provenience		Material	Flint: Dark Grey & Black	Mottled	Green Grey	Grey	White-Blue Grey	Red Grey/Red Brown	Brown Mix with Dark Grey to Black	Brown	Quartz	Quartzite	Other	Total
	S	1	44	8	2	22	34	6	23	11	0	0	0	150
	S	2	0	0	0	2	3	0	1	0	0	0	2	8
	S	2A	6	2	0	3	17	6	2	1	0	0	1	38
	Bittner's bar.	3	20	3	0	2	13	3	0	2	0	0	0	43
	Rush's Flow.	4	0	0	0	0	0	0	0	0	0	0	0	0
	Utility Trench	5	55	9	1	85	107	2	4	10	2	0	4	279
	Rush's yard	6	84	6	2	60	92	25	38	23	6	0	5	341
IV.	North	7	45	3	1	49	91	3	22	7	1	0	4	226
	Total		254	31	6	223	357	45	90	54	9	0	16	1085

stratigraphic position: plowzone (Ap)

Flint chips

E

Provenience		Material	Flint: Dark Grey & Black	Mottled	Green Grey	Grey	White-Blue Grey	Red Grey/Red Brown	Brown Mix with Dark Grey to Black	Brown	Quartz	Quartzite	Other	Total
	S	1	4	0	0	1	6	0	0	4	0	0	0	15
	S	2	9	4	3	6	6	4	13	7	1	0	2	55
	S	2A	8	1	0	5	5	0	6	3	0	0	0	28
	Bittner's Garden	3	1	0	0	2	2	1	0	1	0	0	2	9
	Rush's Flower Bed	4	19	8	0	32	59	8	6	5	0	0	0	137
	Utility Trench	5	0	0	0	0	0	0	0	0	0	0	0	0
	Rush's yard	6	60	6	0	23	73	15	13	14	0	0	38	242
IV	North	7	66	4	0	40	66	9	15	22	1	0	3	226
	Total		167	23	3	109	217	37	53	56	2	0	45	712

stratigraphic position: subsoil (B_{21}, B_{22}), excluding features

counts of flint chips in separate areas

GA23-70203b

F

	Flint											
Material / Provenience	Dark Grey to Black	Mottled	Green Grey	Grey	Wh.-Blue Grey	Red Grey/Red Brown	Brown Mix with Dark Grey to Black	Brown	Quartz	Quartzite	Other	Total
1												
2	17	0	0	5	14	0	11	16	0	0	0	63
2A												
3	1	0	0	1	5	1	3	3	0	0	0	14
4	17	3	0	7	21	4	3	3	0	0	0	61
5	18	3	0	18	35	1	2	7	0	0	0	84
6	39	3	1	6	31	5	19	21	0	0	3	128
VI 7	43	1	0	16	27	5	5	7	0	0	0	104
Total	135	10	1	53	133	16	43	60	0	0	3	454

Stratigraphic position: Features (subsoil)

G — Features

		I	IV	V	VI	VII	VIII
S	1,2,2A	17 - .45	5 - 1.21	14 - 2.22	0 *	11 + 4.92	16 + 8.61
center	3,4,5,6	75 - 2.32	32 - .08	92 + 3.83	11 + .27	27 - 0.0	37 - 0.0
N	7	43 + 7.71	16 + 1.53	27 - 1.0	5 + .55	5 - 3.67	7 - 5.32

H — Sub-soil

	I	IV	V	VI	VII	VIII	
1,2,2A	21 - .19	12 - .74	17 - 9.33	4 *	19 + 24.3	14 + 6.76	87
3,4,5,6	80 - 1.7	57 + 6.0	134 + 11.82	24 + 2.47	19 - 6.22	20 - 6.73	334
7	66 + 2.92	40 + .37	66 - 1.99	9 - 1.66	15 - 1.85	22 - .72	

I — Plowzone

	I	IV	V	VI	VII	VIII	
1,2,2A	50 + .9	27 - 6.08	54 - 2.46	12 + 2.59	26 ± 8.48	12 + .78	181
3,4,5,6	159 + .3	147 + 2.77	212 - .66	30 + .59	42 - 8.62	35 + .32	625
7	45 - 2.45	49 + .08	91 + 5.95	3 *	22 + .6	7 - 2.29	

Dark Grey to Black

Grey

White-Blue Grey

Red Grey/Red Brown

Brown Mix with Dark Grey to Black

Brown

flint chip

overall N/C/S

3 areas

I IV V flint chips VII VI VIII

counts & χ^2 values for debitage for the north & south area

J		I	IV	V	~~VI~~	VII	VIII	
south	1,2A,2	50 + 3.43	29 − 2.05	54 − 4.83		26 + 2.1	12 + 2.83	171
north	7	45 − -3.43	49 + 2.05	91 + 4.83		22 − 2.1	7 − 2.83	214
		95	78	145		48	19	385

PZ

K		I	IV	V	VII	VIII	
	1,2,2A	21 − 1.13	12 − .87	17 − 3.64	19 + 14.25	14 + 2.18	83
	7	66 + 1.13	40 + .87	66 + 3.64	15 − 14.25	22 − 2.18	209
		87	52	83	34	36	292

SS

L		I	IV	V	VII	VIII	
	1,2,2A	17 − 4.66	5 − 2.36	14 − .54	11 + 6.48	16 + 10.42	63
	7	43 + 4.66	16 + 2.36	27 + .54	5 − 6.58	7 − 10.42	98
		60	21	41	16	23	161

Feo.

I	IV	V	VII	VIII
Dark Grey to Black	Grey	White-Blue Grey	Brown Mix with Dark Grey to Black	Brown

flint chip distribution

χ^2 for comparison

only between N & S

archaic

Rittner's garden eliminated, ~~sample~~ cells to small

M

	I	IV	V	VII	VIII		
~~3,4~~	~~20~~	~~0~~	~~13~~	~~0~~	~~2~~		
U.T., Ym² 5,4	55 − 3.84	85 + 11.03	107 + 6.06	4 − 25.33	10 − 3.81	261	PZ
Paulette's yard 6	84 + 3.84	60 − 11.03	92 − 6.06	38 + 25.33	23 + 3.81	297	
	139	145	199	42	33	558	

counts & χ^2 values for debitage in the central area

N

	I	IV	V	VII	VIII		
~~3,4~~	~~1~~	~~2~~	~~2~~	~~0~~	~~1~~		
U.T. Rush. band. 5,4	19 − 11.04	32 + 9.44	59 + 2.41	6 − .56	5 − 1.51	121	SS
Paulette's yard 6	60 + 11.04	23 − 9.44	73 − 2.41	13 + .56	14 + 1.51	183	
	79	55	132	19	19	304	

O

	I	IV	V	VII	VIII		
~~3,4~~	~~1~~	~~1~~	~~5~~	~~3~~	~~3~~		
5,4	35 − 1.37	25 + 10.82	36 + 6.9	5 − 11.08	10 − 6.13	131	Features
6	39 + 1.37	6 − 10.82	31 − 6.9	19 + 11.08	21 + 6.13	116	
	74	31	87	24	31	247	

flint chips comparison of χ^2 only for central area — village